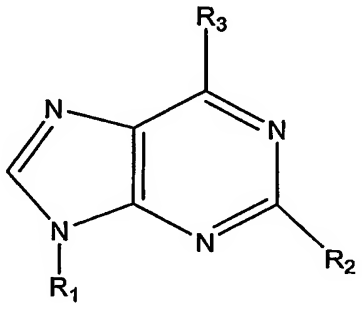
CLAIMS:

1. Use of an A3 adenosine receptor agonist (A3RAg) for the preparation of a pharmaceutical composition for administration to a subject suffering from multiple sclerosis and being in need of a neuralgic protective treatment.

2. The use according to Claim 1 wherein said pharmaceutical composition is for oral administration.

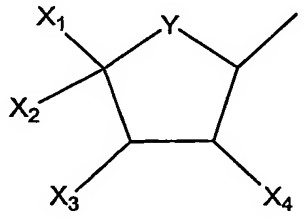
3. The use of Claim 1 wherein said A3RAg is a compound within the scope of the general formula (I):



(I)

wherein,

- R_1 represents an alkyl, hydroxyalkyl, carboxyalkyl or cyanoalkyl or a group of the following general formula (II):



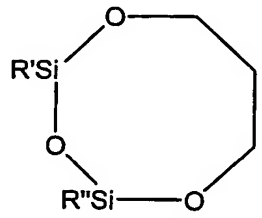
(II)

in which:

- Y represents an oxygen, sulfur or CH_2;
- X_1 represents H, alkyl, $R^aR^bNC(=O)$- or HOR^c-, wherein
  - R^a and R^b may be the same or different and are selected from the group consisting of hydrogen, alkyl, amino, haloalkyl, aminoalkyl, BOC-aminoalkyl, and cycloalkyl or are joined together to form a heterocyclic ring containing two to five carbon atoms; and
  - R^c is selected from the group consisting of alkyl, amino, haloalkyl, aminoalkyl, BOC-aminoalkyl, and cycloalkyl;

- X_2 is H, hydroxyl, alkylamino, alkylamido or hydroxyalkyl;

- X_3 and X_4 represent independently hydrogen, hydroxyl, amino, amido, azido, halo, alkyl, alkoxy, carboxy, nitrilo, nitro, trifluoro, aryl, alkaryl, thio, thioester, thioether, -OCOPh, -OC(=S)OPh or both X_3 and X_4 are oxygens connected to >C=S to form a 5-membered ring, or X_2 and X_3 form the ring of formula (III):



(III)

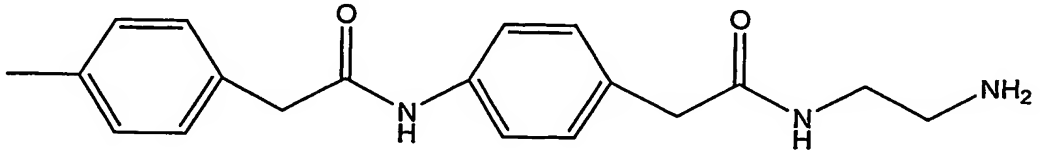
where **R'** and **R"** represent independently an alkyl group;

- R_2 is selected from the group consisting of hydrogen, halo, alkylether, amino, hydrazido, alkylamino, alkoxy, thioalkoxy, pyridylthio, alkenyl; alkynyl, thio, and alkylthio; and

- R_3 is a group of the formula $-NR_4R_5$ wherein

- R_4 is a hydrogen atom or a group selected from alkyl, substituted alkyl or aryl-NH-C(Z)-, with **Z** being O, S, or NR^a with R^a having the above meanings; wherein when R_4 is hydrogen than

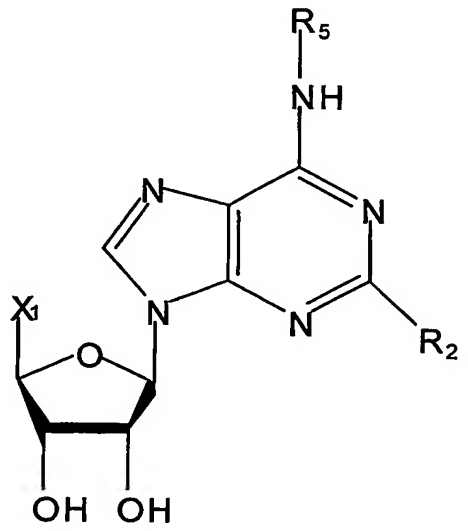
- R_5 is selected from the group consisting of R- and S-1-phenylethyl, benzyl, phenylethyl or anilide groups unsubstituted or substituted in one or more positions with a substituent selected from the group consisting of alkyl, amino, halo, haloalkyl, nitro, hydroxyl, acetoamido, alkoxy, and sulfonic acid or a salt thereof; benzodioxanemethyl, fururyl, L-propylalanyl- aminobenzyl, β-alanylamino-benzyl, T-BOC-β-alanylaminobenzyl, phenylamino, carbamoyl, phenoxy or cycloalkyl; or R_5 is a group of the following formula:



or when R_4 is an alkyl or aryl-NH-C(Z)-, then, R_5 is selected from the group consisting of heteroaryl-NR^a-C(Z)-, heteroaryl-C(Z)-, alkaryl-NR^a-C(Z)-, alkaryl-C(Z)-, aryl-NR-C(Z)- and aryl-C(Z)-; **Z** representing an oxygen, sulfor or amine;

or a physiologically acceptable salt of the above compound.

4. The use of claim 1 wherein said A3RAg is a nucleoside derivative of the general formula (IV):



(IV)

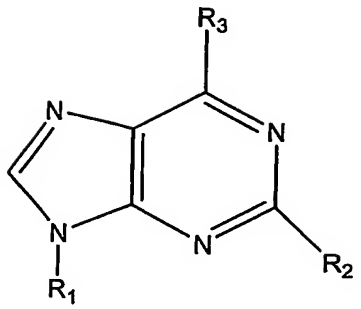
wherein X_1, R_2 and R_5 are as defined in claim 3, and physiologically acceptable salts of said compound.

5. The use of Claim 1 wherein said A3RAg is selected from N^6-2- (4-aminophenyl)ethyladenosine (APNEA), N^6-(4-amino-3-iodobenzyl) adenosine-5'-(N-methyluronamide) (AB-MECA), N^6-(3-iodobenzyl)-adenosine-5′-N-methyluronamide (IB-MECA) and 2-chloro-N^6-(3-iodobenzyl)- adenosine-5′-N-methyluronamide (Cl-IB-MECA).

6. A pharmaceutical composition for the treatment of multiple sclerosis that comprises an effective amount of an A3RAg and a pharmaceutically acceptable carrier.

7. The composition according to Claim 6 for oral administration.

8. The composition according to Claim 6 wherein said A3RAg is a compound within the scope of the general formula (I):



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wherein,

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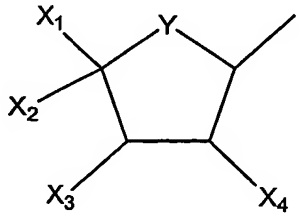

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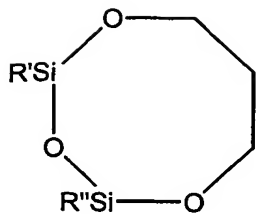
- X_2 is H, hydroxyl, alkylamino, alkylamido or hydroxyalkyl;
- X_3 and X_4 represent independently hydrogen, hydroxyl, amino, amido, azido, halo, alkyl, alkoxy, carboxy, nitrilo, nitro, trifluoro, aryl, alkaryl, thio, thioester, thioether, -OCOPh, -OC(=S)OPh or both X_3 and X_4 are oxygens connected to >C=S to form a 5-membered ring, or X_2 and X_3 form the ring of formula (III):



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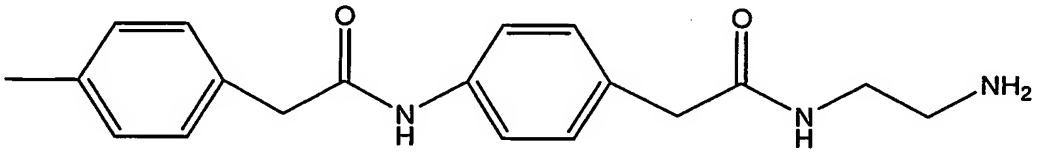

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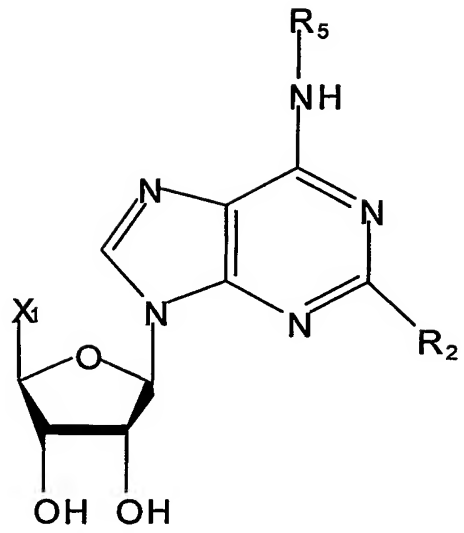

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10. The composition according to Claim 6 wherein said A3RAg is selected from N^6-2- (4-aminophenyl)ethyladenosine (APNEA), N^6-(4-amino-3-iodobenzyl) adenosine- 5'-(N-methyluronamide) (AB-MECA), N^6-(3-iodobenzyl)-adenosine-5′-N- methyluronamide (IB-MECA) and 2-chloro-N^6-(3-iodobenzyl)- adenosine-5′-N-methyluronamide (Cl-IB-MECA).